

Graduate Seminar



Algorithmic Decision Making and the Cost of Fairness

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Department of Management
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Thursday, November 30th

4:30 PM

Doherty Hall A302

1:30 PM

Room B23 118

Abstract:

Algorithms are now regularly used to decide whether defendants awaiting trial are too dangerous to be released back into the community. In some cases, black defendants are substantially more likely than white defendants to be incorrectly classified as high risk. To mitigate such disparities, several techniques have recently been proposed to achieve algorithmic fairness. Here we reformulate algorithmic fairness as constrained optimization: the objective is to maximize public safety while satisfying formal fairness constraints designed to reduce racial disparities. We show that for several past definitions of fairness, the optimal algorithms that result require detaining defendants above race-specific risk thresholds. We further show that the optimal unconstrained algorithm requires applying a single, uniform threshold to all defendants. The unconstrained algorithm thus maximizes public safety while also satisfying one important understanding of equality: that all individuals are held to the same standard, irrespective of race. Because the optimal constrained and unconstrained algorithms generally differ, there is tension between improving public safety and satisfying prevailing notions of algorithmic fairness. By examining data from Broward County, Florida, we show that this trade-off can be large in practice. We focus on algorithms for pretrial release decisions, but the principles we discuss apply to other domains, and also to human decision makers carrying out structured decision rules.

Bio:

Sharad Goel is an assistant professor at Stanford University in the Department of Management Science & Engineering, and holds courtesy appointments in Computer Science and Sociology. He looks at public policy through the lens of computer science, bringing a computational perspective to a diverse range of contemporary issues, including police practices, bail reform, political polarization, voter fraud, and online privacy. Before joining Stanford, Sharad was a senior researcher at Microsoft in New York City.

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SEMINAR NOTES: (REFRESHMENTS SERVED AT 4:00 PM)